

A high-level monthly briefing on operations and activities at the U.S. Department of Energy's Idaho National Engineering and Environmental Laboratory – Home of Science and Engineering Solutions. Work at the lab supports the Department's business lines of environmental quality, energy resources, national security and science.

■ ENERGY RESOURCES – Novel Bus Undergoes Winter Testing

A new mid-sized bus being developed by the INEEL, the automotive industry and other private companies is being put through the paces in and around Yellowstone National Park this winter. A prototype model was first brought to Yellowstone and Grand Teton national parks in August 2003 for demonstration, and subsequently toured other locations around the country so that National Park Service staff and others could see and comment on the vehicle. The bus, which has now been fitted with tracks for use on snow, can operate on diesel or more environmentally friendly biodiesel. Testing of the vehicle customized for use in the national parks is scheduled for completion in March 2004. Following final design revisions, production of the unique vehicle could begin later this spring, with initial deliveries starting this fall.

■ ENVIRONMENTAL QUALITY – Basin Closure Work Accelerated with Subcontract

Efforts to clean and close four aging water-filled basins that for years stored used nuclear fuel have been given a significant boost. The used nuclear fuel was removed from the basins earlier this year and placed in safe above-ground storage. Now, a new \$300,000 subcontract has been awarded to a specialty engineering services company that will provide experienced divers, cleaning equipment and materials needed to close the basins by the end of 2004 – substantially sooner than originally planned. One of the biggest challenges to getting the spent fuel basins closed was the risk of contamination escaping into the air from the walls of the older basins as the water was removed. The divers will remove debris and sludge at the bottom of the aging basins and then apply a fixative coating under water to the basin walls to keep contamination in place. DOE has an agreement with the state of Idaho to close the spent fuel basins.

■ NATIONAL SECURITY – Munitions Assessment System to Begin Operations

The U.S. Army has successfully tested an integrated munitions assessment system, in preparation for operations that are scheduled to begin this spring. Engineers in the INEEL's National Security Division designed, fabricated and delivered the facility-based system for the U.S. Army's Technical Escort Unit. This system – which consists of a series of stainless steel modules and includes INEEL-developed technologies such as the portable isotopic neutron spectroscopy system – will be used by the military to assess, unpack and repack recovered chemical munitions in preparation for eventual destruction.

■ SCIENCE – International Collaboration Advances Cancer Treatment

An ongoing collaboration between researchers at the INEEL and the National Atomic Energy Commission of Argentina (CNEA) strives to improve protocols used in the current trials of an innovative form of cancer treatment. Boron Neutron Capture Therapy is a technique that delivers concentrated doses of radiation directly to tumors while sparing non-cancerous tissues. Injecting a boron delivery agent into the site of the tumor, then exposing the area to a beam of neutrons releases radiation wherever neutrons interact with boron. INEEL scientists developed unique software that aids treatment planning by calculating the doses of delivered radiation. The researchers have also synthesized a key precursor to a promising new boron delivery agent.

For more information, contact Brad Bugger at 208-526-0833